

### AMENDMENTS TO THE CLAIMS

Only the claims being amended are provided in this section with the changes shown *with respect to the patent claims* according to U.S. reissue patent rules. For the Examiner's convenience, also attached to the end of this paper is APPENDIX A, which provides a list of all pending claims showing the present changes made *with respect to the last claim Amendment* (i.e., Preliminary Amendment filed on May 11, 2004).

Please amend the claims as follows:

39. (Three Times Amended) A method for transmitting digital data, comprising:

scrambling digital data in data unit; and

transmitting one or more scrambled data units, identification information, and control data as part of a data group, the data group including a header and the header including the identification information and the control data, the identification information for indicating that at least a portion of the data group has a data structure for copy prevention,

wherein the scrambling step scrambles the digital data based on the control data such that the control data controls a parameter of the scrambling operation, the control data being used for one or more succeeding data units in the scrambling step.

41. (Twice Amended) The method of claim 39, further comprising:

combining the one or more scrambled data units and the header into the data group, before the transmitting step.

44. (Amended) The method of claim 39, wherein the data group further includes copy prevention information, the copy prevention information including one of current generation information and allowable generation information, the current generation information indicating a number of times the digital data has been copied and the allowable generation information indicating a number of permitted copies of the digital data, and

wherein the copy prevention information is used for performing a copy prevention function in a receiving part.

45. (Three Times Amended) A method for recording digital data, comprising:

scrambling digital data in data unit; and

recording one or more scrambled data units, identification information, and control data as part of a data group, the data group including a header and the header including the identification information and the control data, the identification information for indicating that at least a portion of the data group has a data structure for copy prevention,

wherein the scrambling step scrambles the digital data based on the control data such that the control data controls a parameter of the scrambling operation, the control data being used for one or more succeeding data units in the scrambling step.

50. (Amended) The method of claim 45, wherein the data group further includes copy prevention information, the copy prevention information including one of current generation information and allowable generation information, the current generation information indicating a number of times the digital data has been copied and the allowable generation information indicating a number of permitted copies of the digital data, and

wherein the copy prevention information is used for performing a copy prevention function in a reproducing/recording part.

51. (Amended) A method of processing digital data, comprising:

receiving a data group including identification information, control data and scrambled digital data, the data group including a header and the header including the identification information, the identification information for indicating that at least a portion of the data group has a data structure for copy prevention; and

descrambling the scrambled digital data based on the control data, the control data being used for one or more succeeding data units in the descrambling step.

52. (Amended) The method of claim 51, wherein

the receiving step further receives copy prevention information as part of the data group,  
and the method further comprises:

performing a copy prevention function based on the copy prevention information.

55. (Amended) The method of claim 52, wherein the copy prevention information includes one  
of current generation information and allowable generation information, the current generation  
information indicating a number of times the digital data has been copied and the allowable  
generation information indicating a number of permitted copies of the digital data, and  
wherein the performing step performs the copy prevention function such that copying of digital  
data is not permitted if the copy prevention information indicates that copying of digital data is  
not permitted, and

wherein the descrambling step is performed only if the copy prevention information  
indicates that copying of digital data is permitted.

56. (Four Times Amended) A data storage medium, comprising:

a data area including at least one data group, the data group comprising a header and a  
digital data;

the header including an identification information and a control data;

the identification information for indicating that at least a portion of the data group has a  
data structure for copy prevention;

the control data for controlling a parameter of a scrambling operation; and

the digital data including one or more data units scrambled based on the control data, the  
control data being used for one or more succeeding data units in a scrambler/descrambler.

58. (Three Times Amended) The data storage medium of claim 56, wherein the control data  
comprises encrypted control data encrypted by a key.

59. (Twice Amended) The data storage medium of claim 56, wherein the data group further includes copy prevention information, the copy prevention information including one of current generation information and allowable generation information, the current generation information indicating a number of times digital data has been copied and the allowable generation information indicating a number of permitted copies of the digital data.

Please add the following new claims:

70. The method of claim 39, wherein the data group includes at least two packets, at least first packet including one data unit and the header, and  
wherein the scrambling step scrambles the data unit except for the header.

71. The method of claim 39, wherein the scrambling step scrambles the digital data in such a manner that the digital data is protected.

72. The method of claim 45, wherein the data group includes at least two packets, at least first packet including one data unit and the header, and  
wherein the scrambling step scrambles the data unit except for the header.

73. The method of claim 45, wherein the scrambling step scrambles the digital data in such a manner that the digital data is protected.

74. The method of claim 51, wherein the data group includes at least two packets, at least first packet including one data unit and the header, and  
wherein the descrambling step descrambles the data unit except for the header.

75. The method of claim 74, further comprising:  
extracting the header from the packet, and

wherein the descrambling step descrambles the data unit except for the header based on the control data.

76. The method of claim 51, wherein the descrambling step descrambles the digital data in such a manner that the digital data is not protected.

77. The data storage medium of claim 56, wherein the data group includes at least two packets, at least first packet including one data unit and the header.

78. The data storage medium of claim 56, wherein the digital data is scrambled in such a manner that the digital data is protected.

79. An apparatus for transmitting digital data, comprising:

a scrambler to scramble digital data in data unit; and

a controller operatively coupled to control the scrambler, and to control a transmission of the scrambled one or more data units, identification information and control data as part of a data group, the data group including a header, the header including the identification information and the control data, the identification information for indicating that at least a portion of the data group has a data structure for copy prevention,

wherein the scrambler is configured to scramble the digital data based on the control data such that the control data controls a parameter of the scrambling operation, according to a control of the controller, the control data being used for one or more succeeding data units in the scrambler.

80. The apparatus of claim 79, further comprising:

a multiplexer to combine the one or more scrambled data units and the header into one data group before the transmission.

81. The apparatus of claim 79, further comprising:

an encryption unit to encrypt the control data prior to the transmission, and  
wherein the controller is configured to transmit the encrypted control data as part of the  
data group.

82. The apparatus of claim 81, wherein the encryption unit is configured to encrypt the control  
data based on a key, according to a control of the controller.

83. The apparatus of claim 79, wherein the header further includes copy prevention information,  
the copy prevention information including one of current generation information and allowable  
generation information, the current generation information indicating a number of times the  
digital data has been copied and the allowable generation information indicating a number of  
permitted copies of the digital data, and

wherein the copy prevention information is used for performing a copy prevention  
function in a receiving apparatus.

84. The apparatus of claim 79, wherein the data group includes at least two packets, at least first  
packet including one data unit and the header, and

wherein the scrambler is configured to scramble the data unit except for the header.

85. The apparatus of claim 79, wherein the scrambler is configured to scramble the digital data in  
such a manner that the digital data is protected.

86. An apparatus for recording digital data, comprising:

a scrambler to scramble digital data in data unit; and

a controller operatively coupled to the scrambler, and to control a recording of one or  
more scrambled units, identification information, and control data as part of a data group, the  
data group including a header and the one or more scrambled data units, the header including the  
identification information and the control data, the identification information for indicating that  
at least a portion of the data group has a data structure for copy prevention,

wherein the scrambler is configured to scramble the digital data based on the control data such that the control data controls a parameter of the scrambling operation according to a control of the controller, the control data being used for one or more succeeding data units in the scrambler.

87. The apparatus of claim 86, further comprising:

a multiplexer to combine the one or more scrambled data units and the header into one data group before the recording.

88. The apparatus of claim 86, further comprising:

an encryption unit to encrypt the control data prior to the recording, and  
wherein the controller is configured to record the encrypted control data as the data group.

89. The apparatus of claim 88, wherein the encryption unit is configured to encrypt the control data based on a key, according to a control of the controller.

90. The apparatus of claim 86, wherein the data group further includes copy prevention information, the copy prevention information including one of current generation information and allowable generation information, the current generation information indicating a number of times the digital data has been copied and the allowable generation information indicating a number of permitted copies of the digital data, and

wherein the copy prevention information is used for performing a copy prevention function in a reproducing/recording apparatus.

91. The apparatus of claim 86, wherein the data group includes at least two packets, at least first packet including one data unit and the header, and

wherein the scrambler is configured to scramble the data unit except for the header.

92. The apparatus of claim 86, wherein the scrambler is configured to scramble the digital data in such a manner that the digital data is protected.

93. An apparatus for processing digital data, comprising:

a receiving part to receive a data group including identification information, control data and scrambled digital data, the data group comprising one or more scrambled data units and a header, the header including the identification information, the identification information for indicating that at least a portion of the data group has a data structure for copy prevention;

a descrambler to descramble the scrambled digital data based on the control data, the control data being used for one or more succeeding data units in the descrambler; and

a controller operatively coupled to the descrambler to control a descrambling operation.

94. The apparatus of claim 93, wherein the data group further includes copy prevention information, the copy prevention information including one of current generation information and allowable generation information, the current generation information indicating a number of times the digital data has been copied and the allowable generation information indicating a number of permitted copies of the digital data, and

wherein the controller is configured to control a copy prevention function based on the copy prevention information such that copying of digital data is not permitted if the copy prevention information indicates that copying of digital data is not permitted.

95. The apparatus of claim 94, wherein the controller is configured to control the descrambler such that the descrambling of the scrambled data unit by the descrambler is performed only if the copy prevention information indicates that copying of digital data is permitted.

96. The apparatus of claim 93, wherein the received control data is an encrypted control data, and the apparatus further comprises:

a decryption unit to decrypt the encrypted control data using a key prior to the descrambling, according to a control of the controller.



97. The apparatus of claim 93, wherein the data group includes at least two packets, at least first packet including one data unit and the header, and

wherein the descrambler is configured to descramble the data unit except for the header.

98. The apparatus claim 93, further comprising:

an extraction unit to extract the header from a data block, and

wherein the descrambler is configured to descramble the data unit except for the header based on the control data, according to a control of the controller.

99. The apparatus of claim 93, wherein the descrambler is configured to descramble the digital data in such a manner that the digital data is not protected.

100. A method of transmitting digital data, comprising:

scrambling digital data in data unit; and

transmitting one or more scrambled data units and control data, the control data being used for controlling a parameter of a scrambling/descrambling operation and the same control data being used for one or more succeeding data units in the scrambling step.

101. The method of claim 100, wherein the control data is used to initialize a scrambler for performing the scrambling operation, and

wherein the scrambling step includes initializing the scrambler based on the control data.

102. The method of claim 100, wherein the digital data comprises a plurality of data blocks including a first data block, each data block including a header and one data unit, at least the header in the first data block including the control data, and

wherein the scrambling step scrambles each data unit except for the header in each data block.

103. The method of claim 100, wherein the control data is changed or refreshed periodically, and wherein the scrambling step scrambles one or more succeeding data units based on the changed or refreshed control data.

104. The method of claim 100, further comprising:  
multiplexing at least two scrambled data units and the control data into one data group before the transmitting step.

105. The method of claim 104, wherein the data group includes at least two packets, at least first packet including one data unit and a header, the header including the control data, and wherein the multiplexing step multiplex the at least two packets into one data group before the transmitting step.

106. The method of claim 100, wherein the scrambling step scrambles the digital data in such a manner that the digital data is protected.

107. The method of claim 104, wherein the data group further includes copy prevention information, the copy prevention information including one of current generation information and allowable generation information, the current generation information indicating a number of times the digital data has been copied and the allowable generation information indicating a number of permitted copies of the digital data, and  
the copy prevention information being used for a copy prevention function in a receiving part.

108. An apparatus for transmitting digital data, comprising:  
a scrambler to scramble digital data in data unit; and  
a controller operatively coupled to control the scrambler, and to control a transmission of one or more scrambled data units and control data, the control data being used for controlling a

parameter of a scrambling/descrambling operation and the same control data being used for one or more succeeding data units in the scrambler.

109. The apparatus of claim 108, wherein the control data is used to initialize a scrambler for performing the scrambling operation, and

wherein the controller is configured to initialize the scrambler based on the control data.

110. The apparatus of claim 108, wherein the digital data comprises a plurality of data blocks including a first data block, each data block including one data unit and a header, at least the header in the first data block including the control data, and

wherein the scrambler is configured to scramble each data unit except for the header in each data block, according to a control of the controller.

111. The apparatus of claim 108, wherein the control data is changed or refreshed periodically, and

wherein the controller is configured to control the scrambler to scramble one or more succeeding data units based on the changed or refreshed control data.

112. The apparatus of claim 108, further comprising:

a multiplexer to multiplex at least two scrambled data units and a header into one data group before the transmission, the header including the control data.

113. The apparatus of claim 112, wherein the data group includes at least two packets, at least first packet including one data unit and the header, and

wherein the multiplexer is configured to multiplex the at least two packets into one data group.

114. The apparatus of claim 108, wherein the scrambler is configured to scramble the digital data in such a manner that the digital data is protected.

115. The apparatus of claim 112, wherein the data group further includes copy prevention information, the copy prevention information including one of current generation information and allowable generation information, the current generation information indicating a number of times the digital data has been copied and the allowable generation information indicating a number of permitted copies of the digital data, and the copy prevention information being used for a copy prevention function in a receiving apparatus.

116. A method of recording digital data, comprising:  
scrambling digital data in data unit; and  
recording one or more scrambled data units and control data in a data storage, the control data being used for controlling a parameter of a scrambling/descrambling operation and the same control data being used for one or more succeeding data units in the scrambling step.

117. The method of claim 116, wherein the control data is used to initialize a scrambler for performing the scrambling operation, and  
wherein the scrambling step includes initializing the scrambler based on the control data.

118. The method of claim 116, wherein the digital data comprises a plurality of data blocks including a first data block, each data block including one data unit and a header, at least the header in the first data block including the control data, and  
wherein the scrambling step scrambles each data unit except for the header in each data block.

119. The method of claim 116, wherein the control data is changed or refresh periodically, and  
wherein the scrambling step scrambles one or more succeeding data units based on the changed or refreshed control data.

120. The method of claim 116, further comprising:

multiplexing at least two scrambled data units and a header into one data group before the recording step, the header including the control data.

121. The method of claim 120, wherein the data group includes at least two packets, at least first packet including one data unit and the header, and

wherein the multiplexing step multiplexes the at least two packets into one data group.

122. The method of claim 116, wherein the scrambling step scrambles the digital data in such a manner that the digital data is protected.

123. The method of claim 120, wherein the data group further includes copy prevention information, the copy prevention information including one of current generation information and allowable generation information, the current generation information indicating a number of times the digital data has been copied and the allowable generation information indicating a number of permitted copies of the digital data, and

the copy prevention information being used for a copy prevention function in a reproducing /recording part.

124. An apparatus for recording digital data, comprising:

a scrambler to scramble digital data in data unit;

a recording unit to record the scrambled digital data; and

a controller operatively coupled to control the scrambler and to control the recording unit to record one or more scrambled data units and control data in a data storage, the control data being used for controlling a parameter of a scrambling/descrambling operation and the same control data being used for one or more succeeding data units in the scrambler.

125. The apparatus of claim 124, wherein the control data is used to initialize the scrambler for performing the scrambling operation, and

wherein the controller is configured to initialize the scrambler based on the control data.

126. The apparatus of claim 124, wherein the digital data comprises a plurality of data blocks including a first data block, each data block including one data unit and a header, at least the header in the first data block including the control data, and

wherein the scrambler is configured to scramble each data unit except for the header in each data block.

127. The apparatus of claim 124, wherein the control data is changed or refreshed periodically, and

wherein the controller is configured to control the scrambler to scramble one or more succeeding data units based on the changed or refreshed control data.

128. The apparatus of claim 124, further comprising:

a multiplexer to multiplex at least two scrambled data units and a header into one data group before the recording, the header including the control data.

129. The apparatus of claim 128, wherein the data group includes at least two packets, at least first packet including one data unit and the header, and

wherein the multiplexer is configured to multiplex the at least two packets into one data group.

130. The apparatus of claim 124, wherein the scrambler is configured to scramble the digital data in such a manner that the digital data is protected.

131. The apparatus of claim 128, wherein the data group further includes copy prevention information, the copy prevention information including one of current generation information and allowable generation information, the current generation information indicating a number of times the digital data has been copied and the allowable generation information indicating a

number of permitted copies of the digital data, and the copy prevention information being used for a copy prevention function in a reproducing/recording apparatus.

132. A method of processing digital data, comprising:

receiving one or more scrambled data units and a control data, the control data being used for controlling a parameter of a scrambling/descrambling operation and the same control data being used for one or more succeeding data units; and

descrambling the one or more scrambled data units and the one or more succeeding data units based on the same control data.

133. The method of claim 132, wherein the control data is used to initialize a descrambler for performing the descrambling operation, and

wherein the descrambling step includes initializing the descrambler based on the control data.

134. The method of claim 132, wherein the digital data comprises a plurality of data blocks including a first data block, each data block including one data unit and a header, at least the header in the first data block including the control data, and

wherein the descrambling step descrambles the data unit except for the header.

135. The method of claim 132, wherein the control data is changed or refreshed periodically, and

wherein the descrambling step descrambles one or more succeeding data units based on the changed or refreshed control data.

136. The method of claim 132, wherein at least two scrambled data units and a header including the control data comprise one data group, the header including the control data, and

Wherein the method further comprises:

demultiplexing the at least two scrambled data units and the header from one data group before the descrambling step.

137. The method of claim 136, wherein the data group includes at least two packets, at least first packet including the header, and

wherein the demultiplexing step demultiplexes the at least two packets from one data group.

138. The method of claim 132, wherein the descrambling step descrambles the digital data in such a manner that the digital data is not protected.

139. The method of claim 132, wherein the receiving step further receives copy prevention information, the copy prevention information including one of current generation information and allowable generation information, the current generation information indicating a number of times the digital data has been copied and the allowable generation information indicating a number of permitted copies of the digital data, and

Wherein the method further comprises:

performing a copy prevention function such that copying of digital data is not permitted if the copy prevention information indicates that copying of digital data is not permitted.

140. The method of claim 139, wherein the descrambling step is performed only if the copy prevention information indicates that copying of digital data is permitted.

141. An apparatus for processing digital data, comprising:

a receiving part to receive a control data and one or more scrambled data units, the control data being used for controlling a parameter of a scrambling/descrambling operation and the same control data being used for one or more succeeding data units;

a descrambler to descramble the received one or more scrambled data units and one or more succeeding data units based on the same control data; and

a controller, operatively coupled to the descrambler, to control the descrambling operation by the descrambler.



142. The apparatus of claim 141, wherein the control data is used to initialize the descrambler for performing the descrambling operation, and

wherein the controller is configured to initialize the descrambler based on the control data.

143. The apparatus of claim 141, wherein the digital data comprises a plurality of data blocks including a first data block, each data block including one data unit and a header, at least the header in the first data block including the control data, and

wherein the descrambler is configured to descramble each data unit except for the header in each data block.

144. The apparatus of claim 141, wherein the control data is changed or refreshed periodically, and

wherein the controller is configured to control the descrambler to descramble one or more succeeding data units based on the changed or refreshed control data.

145. The apparatus of claim 141, wherein at least two scrambled data units and a header including the control data comprise one data group, the header including the control data, and

wherein the apparatus further comprises:

a demultiplexer to separate the at least two scrambled data units and the header from one data group before the descrambling.

146. The apparatus of claim 145, wherein the data group includes at least two packets, at least first packet including one data unit and the header, and

wherein the demultiplexer is configured to demultiplex the at least two packets from one data group.

147. The apparatus of claim 145, further comprising:

a detector to detect the header from the received data group and to detect the control data within the header.

148. The apparatus of claim 145, wherein the data group further includes copy prevention information, the copy prevention information including one of current generation information and allowable generation information, the current generation information indicating a number of times the digital data has been copied and the allowable generation information indicating a number of permitted copies of the digital data, and

wherein the controller is further configured to control a copy prevention function such that copying of digital data is not permitted if the copy prevention information indicates that copying of digital data is not permitted.

149. The apparatus of claim 141, wherein the descrambling of scrambled digital data by the descrambler is performed only if the copy prevention information indicates that copying of digital data is permitted.

150. A data storage medium comprising:

one or more scrambled data units and control data stored on the data storage medium, wherein the control data is used for controlling a parameter of a scrambling/descrambling operation and the same control data is used for one or more succeeding data units.

151. The data storage medium of claim 150, wherein the control data is used to initialize a scrambler for performing the scrambling operation.

152. The data storage medium of claim 150, wherein the data storage medium includes a plurality of data blocks including a first data block, each data block including one data unit and a header, at least the header in the first data block including the control data, and  
wherein each data unit is scrambled while the header is not scrambled, in each data block.

153. The data storage medium of claim 150, wherein the control data is changed or refreshed periodically, and

wherein one or more succeeding data units are scrambled based on the changed or refreshed control data.

154. The data storage medium of claim 150, wherein at least two packets comprise one data group, at least first packet including one scrambled data unit and a header, the header including the control data.

155. The data storage medium of claim 150, wherein one or more scrambled data units and control data comprise one data group, the data group further including copy prevention information, the copy prevention information including one of current generation information and allowable generation information, the current generation information indicating a number of times the digital data has been copied and the allowable generation information indicating a number of permitted copies of the digital data, and the copy prevention information being used for a copy prevention function in a reproducing/reproducing/recording apparatus such a manner that copying of digital data is not permitted if the copy prevention information indicates that copying of digital data is not permitted.